

Aug. 12, 1947.

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2,425,601

SCRAPING APPARATUS

Filed Jan. 29, 1944

4 Sheets-Sheet 1

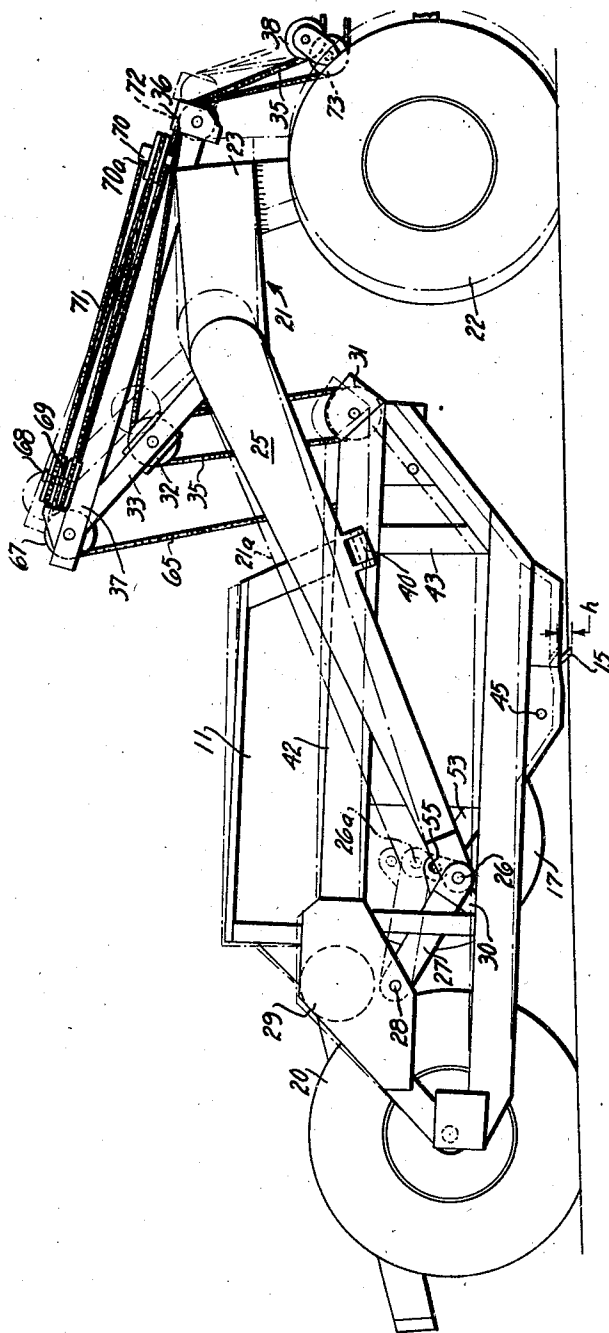


FIG. 1

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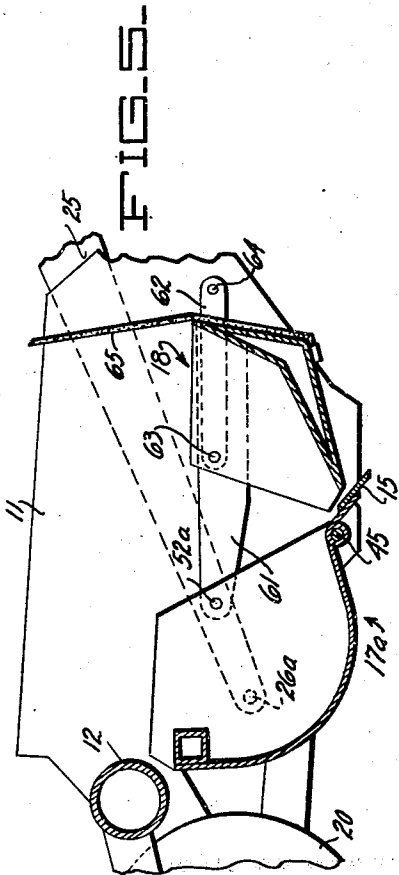
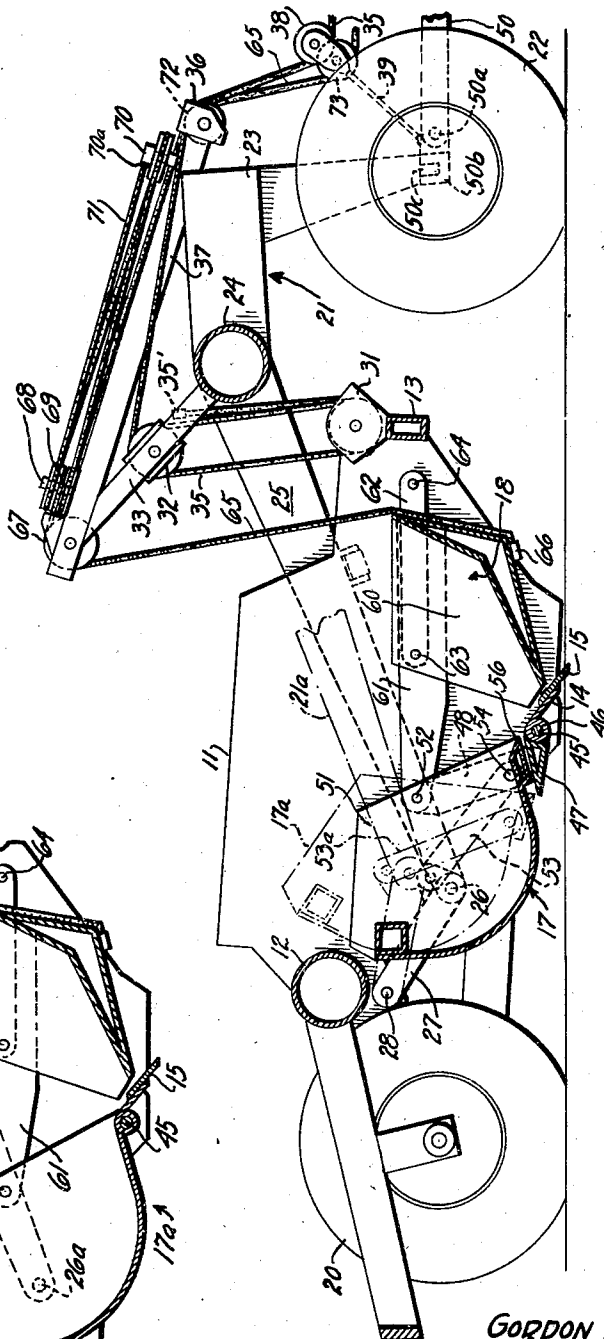


FIG. 6-

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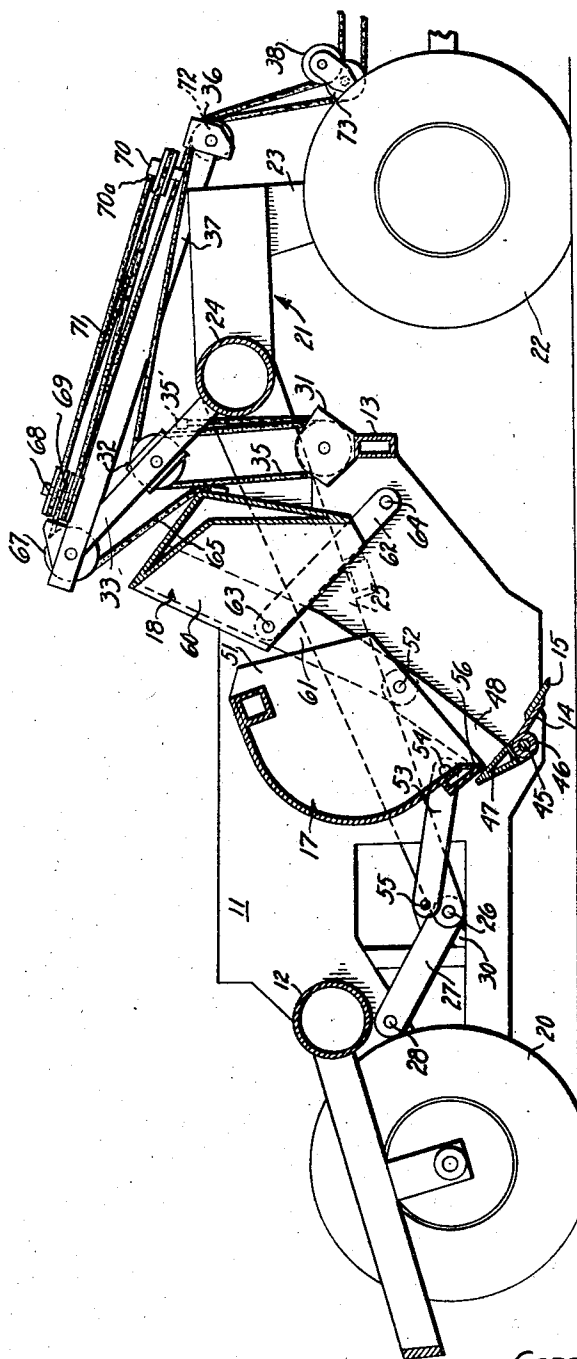
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## SCRAPING APPARATUS

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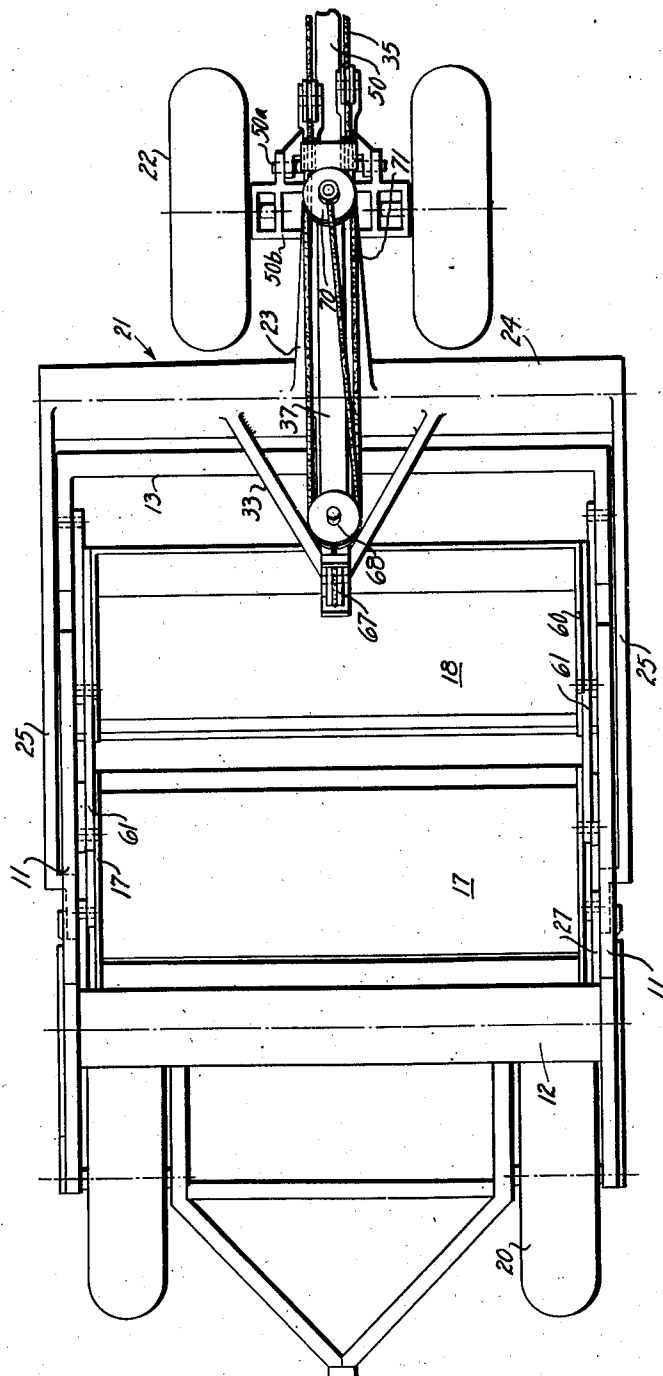


FIG. 4.

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## UNITED STATES PATENT OFFICE

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## SCRAPING APPARATUS

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Application January 29, 1944, Serial No. 520,167

21 Claims. (Cl. 37—126)

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This invention relates to dirt scrapers and has particular reference to scrapers of the "carry-all" type wherein a dirt accumulating body having a scraping edge associated therewith is pulled over the ground to be scraped, the forward movement of the scraping edge directing the scraped material upwardly thereinto.

As is well known, in scrapers of the above type, the dirt upon passing over the scraping edge tends to collect or pile-up directly above and behind this edge, and as further dirt is directed into the body by the scraping edge, it tends to compact into a hardened mass, clogging the edge and hindering distribution of the dirt throughout the body so that the latter cannot be filled to its capacity.

In the machine disclosed and claimed in my Patent No. 2,301,158, issued November 3, 1942, I have overcome the above mentioned difficulty by moving a rear bowl, situated in back of the scraping edge, toward and away from a forward bowl which is arranged in front of the scraping edge, thereby to force the dirt located above the edge bodily into both bowls so as to evenly distribute the same. Also, when the bowls are separated a void or at least a region of decreased density is created above the scraping edge allowing easier influx of scraped material introduced into the body by the scraping edge. This machine is entirely satisfactory in operation but has one drawback in that the rear bowl is pivoted adjacent the bottom thereof to facilitate unloading as well as distribution of the load, and consequently, although the upper portion of a load within the scraper receives a considerable amount of bodily movement into both bowls and results in a void of considerable extent, the lower portion of such load, because of the smaller relative movement between the bowls adjacent the pivotal support for the rear bowl, does not receive as great a distributing movement and consequently the resulting void in this region is proportionately smaller.

One object of the present invention is to overcome the above noted drawback.

Another object of the present invention is to automatically distribute material accumulated by the scraping edge throughout a scraper body in response to the reaction between the scraper and the prime mover therefor.

A further object is to reduce the amount of attention required on the part of the scraper operator in operating a scraper.

A further object is to coordinate the movement of the forward and rear bowls of a scraper in all phases of operation performed by the scraper.

A further object is to provide a simple operating connection between the forward and rear bowls of a scraper for the purpose of properly

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controlling movements thereof in all phases of operation.

A further object is to automatically adjust the height of the scraping edge in accordance with the reaction between the scraper and the prime mover therefor.

The manner in which the above and other objects of the present invention are accomplished will be readily understood from the following specification when read in conjunction with the accompanying drawings wherein:

Fig. 1 is a side elevational view of a dirt scraper embodying the present invention and showing the scraper in alternate digging positions.

Fig. 2 is a sectional view in side elevation of the scraper showing parts of the scraper in the alternate digging positions illustrated in Fig. 1.

Fig. 3 is a sectional view in side elevation showing the scraper in dumping position.

Fig. 4 is a plan view of the scraper.

Fig. 5 is a sectional view in side elevation, with parts broken away, of an alternative and simplified form of the invention.

Referring now to the drawings, the scraper comprises side frames 11 secured in spaced relationship by a tubular rear cross beam 12, a forward cross beam 13, and a lower mold board 14, the latter having attached thereto a scraping blade 15 capable of directing material scraped thereby upwardly into the scraper body formed by the side frames 11, a rear bowl 17 and a forward bowl 18.

The scraper body is supported at the rear thereof by wheels 20 and at the front thereof by a yoke frame 21 carried by a truck including dirigible wheels 22. A draft bar 50 is pivotally connected at 50a to the axle member 50b of the front wheels for the purpose of connecting the scraper to a tractor or other prime mover for pulling the same along the ground.

The yoke frame 21 comprises a right angled post 23 provided at the lower end thereof with a pivot pin 50c fitted in a suitable bearing formed in the axle 50b. The post 23 is integral with a tubular cross beam 24 to which are also rigidly fixed two arms 25 extending rearwardly adjacent and outside the side walls 11 of the scraper. These arms terminate in pivotal connections 26 with links 27 which in turn are pivotally connected at 28 to gusset plates 29 forming part of the side frames 11.

A stop lug 30 carried by each frame 11 limits the clockwise rocking of each link 27 to that position illustrated in Fig. 1.

The forward end of the scraper body is normally raised and lowered, whereby to vertically adjust the position of the scraper blade 15 relative to the ground, by a cable and sheave arrangement comprising a sheave block 31 mounted on the front cross beam 13 of the scraper body

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and a second sheave block 32 carried by braces 33 extending upwardly from the tubular beam 24 and forming part of a truss for supporting various sheaves in fixed bodily positions relative to the yoke frame 21. A cable 35 is suitably anchored at 35' to one of the braces 33 and is reeved several times around the sheave blocks 31 and 32, and then passes over a sheave 36 carried at the forward end of a beam 37 also forming part of the aforementioned truss. The latter beam is fixed at its forward end to the post 23 and at its rear end to the braces 33. From sheave 36 the cable 35 passes under a sheave 38 mounted on a flexible cable 39 suitably anchored to the front wheel axle 50b, from whence the cable is led to a suitable winch (not shown) preferably driven by the prime mover for the scraper.

In order to brace the yoke frame 21 against lateral movement relative to the scraper body a roller 40 (Fig. 1) is rotatably mounted on brackets extending from each yoke frame arm 25 and rolls in contact with a longitudinal beam 42 and a vertical beam 43 forming a part of the respective side frame 11.

Under ordinary circumstances, i. e., when no material reaction is set up between the scraper blade 15 and the prime mover, the weight of the scraper body will force the pivots 26 of the yoke frame arms 25 downwardly, holding the links 27 against the stop lugs 30. Thus, ordinarily the pivots 26 are in fixed relation relative to the scraper body, and when the cable 35 is raised or lowered the yoke frame 21 rocks relative to the scraper body about an axis coincident with the centers of pivots 26 in their positions illustrated in Fig. 1. However, under conditions to be hereinafter set forth, i. e., when considerable reaction is set up between the scraper blade and the prime mover, incident to forward movement of the scraper the yoke frame 21 will be rocked about the axes of the wheels 22 to another position, for example, as shown in dot and dash lines 21a in Figs. 1 and 2, raising the pivot 26 upwardly to a position indicated at 26a due to the tendency of the yoke frame to assume a position wherein the pivots 26 and 28 are arranged in a line passing through the axes of the front wheels 22.

Means are provided for supporting the rear bowl 17 for movement about either or both of two different axes for the purpose of evenly distributing material within the bowl and for ejecting or unloading scraped material from the body. Extending between and fastened to the side walls 11 of the scraper is a shaft 45 on which is mounted a tubular sleeve 46 arranged tangentially in contact with the mold board 14. A floor panel 47 is arranged to the rear of member 46 and extends therealong. Panel 47 has rigidly fixed thereto on opposite ends thereof arms 48, each pivoted on the shaft 45. The upper ends of the arms 48 are pivotally connected at 52 to the sides 51 of the bowl 17 and thereby support the bowl. The arms 48 and the floor panel 47 are capable of being rocked forward from the position shown in Fig. 2 to that shown in Fig. 3 to move the bowls 17 and 18 into unloading positions as will hereinafter appear, but for the present, in describing the load distributing function, it will be assumed that the arms 48 and consequently the positions of the pivots 52 relative to the scraper body remain fixed.

A link 53, Figs. 2 and 3, is pivotally connected at 54 to the side 51 of the rear bowl and at 55 to a bracket extending upward slightly from the

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forward end of the respective link 27. Thus, the links 53 form the means for rocking the bowl 17 about the pivots 52.

Now, as was stated before, the links 27 are normally held against the stop lugs 30 by virtue of the weight of the scraper body. Thus, the links 53 position the rear bowl 17 in an extreme counterclockwise position about pivots 52 as shown in Fig. 2 with the forward edge 56 thereof extending adjacent the forward edge of the floor panel 47, this position being assumed when little or no reaction is set up between the scraper blade 15 and the draft bar 50.

In performing a digging operation the cable 35 is manipulated to lower the scraper body until the scraper blade is inserted into the ground, for example, as shown in Fig. 2. Now, as the scraper is pulled forward by its prime mover the blade 15 and consequently the scraper body will resist forward movement. Due to the reaction set up by the blade 15, by virtue of the forward pull on the bar 50 the yoke frame 21 will tend to rock clockwise about the axes of the front wheels 22 raising the pivotal connections 26 as was set forth hereinbefore. Because of this raising action links 53 will be drawn from the dotted line position shown in Fig. 2 toward the dot and dash line position 53a shown in that figure, thereby rocking the rear bowl 17 about pivots 52 toward the position shown in dot-dash lines 17a. The lower forward edge 56 of the bowl 17 will consequently move rearward but in view of the location of the edge 56 in juxtaposition with the floor panel 47, the latter will form a means for conveying material to the bowl 17 in different rocked positions thereof about the pivots 52.

As the bowl 17 rocks clockwise about pivots 52 the lower part of the bowl moves away from the forward bowl 18 and a break or at least a region of decreased density will be formed over the scraping blade, reducing the force necessary to direct the scraped material upwardly upon being scraped by the blade. In view of the bodily movement of the lower edge of the bowl 17 the break or region of decreased density will be of considerable extent in the lower portions of the scraper body.

With the cable 35 maintained in a set condition, clockwise rocking of the yoke frame 21 about the axes of the front wheels as an incident to increased reaction caused by the scraper blade 15 digging into a large mass of dirt will result in a slight raising of the scraper body about the axes of the rear wheels 20 into a position similar to that indicated in dot-dash lines in Fig. 1. The scraper blade 15 will consequently be raised as indicated for example by the dimension reducing the depth of penetration into the ground being scraped and reducing the reaction set up between the blade 15 and the draft bar 50. In order to accentuate such reduction of reactance the hoist cable 35 may be pulled to further raise the scraper body and blade. As the reactance is reduced the yoke frame and scraper body will return under the force of gravity toward their lower positions shown in full lines of Figs. 1 and 2, moving the rear bowl 17 counterclockwise so that the forward edge 56 of the latter will force its way into the body of the accumulated scraped material. In view of the presence of the forward bowl 18, the rear bowl 17 will not be capable of forcing the scraped material forwardly any considerable extent and consequently as the rear bowl 17 moves in a counterclockwise direction the scraped material will move into the rearmost positions of

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the latter bowl, enabling the same to be filled to its capacity.

Means are provided under the control of the scraper operator to position the forward bowl 18 so as to cause any desired opening to be created between the lower edge of this bowl and the scraper blade 15. The sides 60 of the bowl 18 have rigidly fixed thereto rearwardly extending arms 61 thus forming parts thereof. These arms are pivotally connected to the rear bowl 17 preferably by the same pivot pins 52 which connect the arms 48 to the rear bowl. Also, links 62 are pivotally connected at 63 to the sides 60 of the bowl 18 and at 64 to the side frames 11, thereby serving to guide the bowl 18 in a prescribed path when the latter is moved.

For the purpose of raising and lowering the bowl 18 a cable 65 is anchored at 66 to the bowl and passes over a sheave 67 rotatably mounted at the rear of beam 37. The cable is anchored at 69 to a traveling sheave block 68. Block 68 coacts with a second sheave block 70, fixedly mounted to the forward end of the beam 37, through a cable 71. The latter cable is anchored at 70a to a fixed part of the sheave block 70 and is reeved several times around the sheaves of the blocks 69 and 70 and thence is passed over a sheave 72 coaxial with the aforementioned sheave 36. Thereafter, cable 65 passes under a sheave 73, suitably connected to the forward axle 50b and is then led to a suitable winch (not shown) preferably driven by the prime mover and under the control of the scraper operator. Thus, in order to adjust the forward bowl to provide a suitable opening for the scraped material to pass upwardly from the scraping blade, the cable 65 is drawn forwardly, rocking the links 62 about pivots 64 while rocking the arm 61 about the pivots 52. Since the pivots 52, 63, and 64 are situated substantially in a straight line when the forward bowl is in "closed" position shown in Fig. 2, adjustment of the latter upwardly a small amount to digging position will not appreciably move the arms 48 and pivots 52 beyond that position shown in Fig. 2. However, the bowl 18 may be adjusted to any desired height and even though the position of the pivot 52 may vary because of this adjustment, resulting in different rocked positions of the floor member, it will not affect operation of the load distributing mechanism mentioned above.

When the scraper has been loaded to its full capacity or less, as desired, the scraper body is raised by drawing forward on the cable 35 until the scraper blade has sufficiently cleared the ground. This operation will slacken cable 65, allowing the forward bowl to move toward "closed" position, but if this movement is not sufficient, the cable 65 may be released under manual control.

Describing now the unloading operation, the cable is first preferably adjusted to position the cutting edge of the scraper blade at a height above the ground substantially equal to the desired height of the "fill." Thereafter, the cable 65 is drawn forward, raising the bowl 18 about its pivots 52 and 64 while being guided by arms 61 and links 62. By reason of the toggle action of arms 61 and links 62 in raising the bowl 18, the arms 48 are carried forwardly, causing the pivots 52 to describe arcs concentric with shaft 45 and consequently carry the upper part of the rear bowl 17 forwardly. At the same time the links 53 restrain forward movement of the lower part of the bowl 17 thus rocking the same about pivots 52 into unloading position.

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It will be noted that the above described linkage coordinating the movement of the two bowls 17 and 18 results in an ideal movement in that the greatest possible leverage is obtained to move the rear bowl during the early phases of the unloading operation, i. e., when the maximum force is required to move the bowl 17, while in advanced phases of the unloading operation, i. e., when the force required to rock the bowl is at a minimum, a maximum amount of movement is obtained.

Fig. 5 illustrates an alternative embodiment of one aspect of the invention, the portions of the drawings omitted being intended to be similar to the corresponding portions illustrated in the remaining Figs. 1 to 4. In this alternative form the load distributing feature has been omitted and the arms 25 of the yoke frame are pivoted directly to the side frames 11 by suitable pivot pins 26a. A rear bowl 17a is pivoted directly on the cross bar 45 which is fixed to the side frames 11. The front bowl 18 is exactly similar to the corresponding bowl shown in Figs. 1 to 4, being pivoted at 63 to links 62 which are in turn pivoted at 64 to the frame sides 11. Also, arms 61 rigidly fixed to the sides of the front bowl are pivoted at 52a to the sides of the rear bowl 17a whereby to constrain both bowls to move in fixed paths upon being moved from digging or transporting positions to loading positions.

Having thus described the invention, what I desire to secure by United States Letters Patent is:

1. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, means carried by said frame forming a floor coextensive with said blade, a receptacle adapted to receive material scraped by said blade and having a cutting edge thereon, means carried by said frame for supporting said receptacle for movement about an axis located above said floor whereby to guide said cutting edge over and adjacent said floor, and means for moving said receptacle back and forth over said floor during movement of said scraper along the ground.

2. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, means carried by said frame forming a floor coextensive with said blade, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement back and forth relative to said blade in the line of draft, a receptacle adapted to receive material scraped by said blade and having a cutting edge thereon, means carried by said frame for movably supporting said receptacle to guide said cutting edge over and adjacent said floor, and means responsive to said relative movement of said draft member for moving said receptacle back and forth over said floor.

3. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, means carried by said frame forming a floor coextensive with said blade, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement back and forth relative to said blade in the line of draft, a receptacle adapted to receive material scraped by said blade and having a cutting edge thereon, means carried by said frame for mov-

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ably supporting said receptacle to guide said cutting edge over and adjacent said floor, and means responsive to increased reactance between said blade and said member for moving said receptacle in one direction and responsive to decreased reactance between said blade and said member for moving said receptacle in the opposite direction.

4. In a scraping apparatus, the combination comprising a scraper frame, a floor member rockably supported by said frame, a receptacle having a cutting edge thereon, means carried by said floor member for rockably supporting said receptacle to guide said cutting edge over and adjacent said floor member, means for rocking said floor member relative to said frame whereby to carry said receptacle between a loading position and a discharging position, and means for rocking said receptacle relative to said floor member.

5. In a scraping apparatus, the combination comprising a scraper frame, a floor member rockably supported by said frame, a receptacle having a cutting edge thereon, and means carried by said floor member for rockably supporting said receptacle to guide said cutting edge over and adjacent said floor member, said floor member being adapted to carry said receptacle between a loading position and a discharging position.

6. In a scraping apparatus, the combination comprising a scraper frame, a member forming a floor rockably supported by said frame, a receptacle having a cutting edge thereon, means carried by said floor member for supporting said receptacle for movement about an axis located above said floor whereby to guide said cutting edge over and adjacent said floor member, means for adjusting said floor member into different positions, and means for rocking said receptacle relative to said floor member in different adjusted positions of the latter.

7. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, a floor member coextensive with said blade and rockably supported by said frame, a receptacle having a cutting edge thereon, means carried by said floor member for rockably supporting said receptacle to guide said cutting edge over and adjacent said floor member, means for rocking said floor member relative to said frame, and means for rocking said receptacle relative to said floor member.

8. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, a floor member coextensive with said blade and rockably supported by said frame, a receptacle having a cutting edge thereon, means carried by said floor member for rockably supporting said receptacle to guide said cutting edge over and adjacent said floor member, means for rocking said receptacle relative to said floor member to cause said cutting edge to penetrate material scraped by said blade whereby to fill said receptacle, and means for rocking said floor member relative to said frame to discharge material carried by said receptacle.

9. In a scraping apparatus, the combination with a scraper frame adapted to be moved along the ground, and a scraper blade carried by said frame; of a floor member adjacent said blade and adapted to receive material scraped by said blade, a receptacle having a cutting edge thereon adjacent said floor member, means on said floor

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member supporting said receptacle for movement relative thereto whereby a guide said cutting edge in a path penetrating material scraped by said blade, and means on said frame supporting said floor member for movement relative thereto whereby to move said receptacle into discharging position relative to said frame.

10. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade associated with said frame, a pair of receptacles adapted to receive material scraped by said blade, means carried by said frame for supporting one of said receptacles for movement toward and away from the other, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement back and forth relative to said blade in the line of draft, and means responsive to said relative back and forth movement of said member for causing said movable receptacle to move back and forth whereby to distribute said material within said receptacles.

11. The combination in accordance with claim 10 wherein said last mentioned means is responsive to said relative back and forth movement of said member for raising and lowering said blade relative to the ground.

12. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade associated with said frame, a pair of receptacles adapted to receive material scraped by said blade, means carried by said frame for pivotally supporting a first one of said receptacles for movement about an axis adjacent the lower end thereof from a loading position to a discharging position, said last mentioned means pivotally supporting said first receptacle for movement about an axis above said first mentioned axis and toward and away from the other of said receptacles whereby to distribute material within said receptacles.

13. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a pair of receptacles associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting one of said receptacles for movement about an axis located adjacent the material entering the edge thereof during movement thereof from a loading position to a discharging position, a link pivotally connected at one point to the other of said receptacles, means carried by said frame for pivotally supporting said link at a second point, and means pivotally connecting said receptacles directly together whereby to conjointly guide said receptacles, each from a loading position to a discharging position.

14. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a rear receptacle and a front receptacle associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting said rear receptacle for movement about an axis located adjacent the material entering edge thereof during movement thereof from a loading position to a discharging position, means comprising a link pivotally connected at one point to said front receptacle, means carried by said frame for pivotally supporting said link at a second point, and means pivotally connecting said

receptacles directly together whereby to conjointly guide the same, each from a loading position to a discharging position.

15. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a rear receptacle and a front receptacle associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting said rear receptacle for movement about an axis adjacent the bottom thereof from a loading position to a discharging position, means comprising a link pivotally connected at one point to said front receptacle above said axis, means carried by said frame for pivotally connecting said link at a second point in front of said one point, and means pivotally connecting said receptacles together at a third point whereby to conjointly guide the same, each from a loading position to a discharging position, the axes of all of said pivotal points lying substantially in a single plane when said receptacles are in a loading position.

16. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a rear receptacle and front receptacle associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting said rear receptacle for movement about an axis adjacent to the bottom thereof from a loading position to a discharging position, means comprising a link pivotally connected at one point to said front receptacle above said axis, means carried by said frame for pivotally supporting said link at a second point, means pivotally connecting said receptacles together whereby to conjointly guide the same, each from a loading position to a discharging position, means for moving said receptacles from a loading position to discharging position, and means for moving one of said receptacles independently of the other.

17. In a scraping apparatus, the combination comprising a scraper frame, means supporting said frame for movement along the ground, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement relative to said frame in line of draft, a pair of receptacles, means carried by said frame for pivotally supporting one of said receptacles for movement from a loading position to a discharging position, means comprising a link pivotally connected at one point to the other of said receptacles, means carried by said frame for pivotally supporting said link at a second point, means pivotally connecting said receptacles together whereby to conjointly guide each of said receptacles from a loading position to a discharging position, and means responsive to said relative movement of said draft member for moving one of said receptacles independently of the other and toward the latter.

18. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, means carried by said frame forming a floor coextensive with said blade, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement back and forth relative to said blade in the line of draft, a receptacle adapted to re-

ceive material scraped by said blade and having a cutting edge thereon, means carried by said floor means for movably supporting said receptacle to guide said cutting edge over and adjacent said floor, and means responsive to said relative movement of said draft member for moving said receptacle back and forth over said floor, said last mentioned means being responsive to said relative movement of said draft member for raising and lowering said frame.

19. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a scraper blade carried by said frame, means carried by said frame forming a floor coextensive with said blade, means including a draft member for transmitting movement to said frame to move the same along the ground, said member being capable of limited movement back and forth relative to said blade in the line of draft, a receptacle adapted to receive material scraped by said blade and having a cutting edge thereon, means carried by said floor means for movably supporting said receptacle to guide said cutting edge over and adjacent said floor, and means responsive to increased reactance between said blade and said member for moving said receptacle in one direction and raising said frame, and responsive to decreased reactance between said blade and said member for moving said receptacle in the opposite direction and for lowering said frame.

20. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a pair of receptacles associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting a first one of said receptacles for movement about an axis adjacent the bottom thereof between loading and discharging positions, means pivotally connecting the other of said receptacles directly to said first receptacle, guide means for constraining said other receptacle to move in a predetermined path relative to said frame between loading and discharging positions, and means for moving said other receptacle through said path whereby to move both of said receptacles between loading and discharging positions.

21. In a scraping apparatus, the combination comprising a scraper frame adapted to be moved along the ground, a pair of receptacles associated with said frame and extending into cooperative relationship with each other, means for directing material into said receptacles, means carried by said frame for pivotally supporting a first one of said receptacles for movement about an axis adjacent the bottom thereof between loading and discharging positions, means pivotally connecting the other of said receptacles directly to said first receptacle, and a link pivotally connected between said other receptacle and said frame for constraining said other receptacle to move in a predetermined path relative to said frame between loading and discharging positions.

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